

comparing said masked query sequence with identified unique sequences;  
identifying a unique portion of the query sequence that does not have a similar sequence  
in any of the identified unique sequences; [and]  
adding the unique portion of the query sequence to a unique database[.]; and  
displaying the unique database.

28. The method of claim 26, wherein said sequence is a deoxyribonucleotide sequence.

29. The method of claim 26, wherein said sequence is a ribonucleotide sequence.

30. The method of claim 26, wherein said sequences are derived from animal DNA or RNA.

42. The method of claim 26, wherein said database is encoded in an electronic medium.

43. The method of claim 42, wherein said electronic medium is a computer-readable medium.

44. The method of claim 43, wherein said computer-readable medium is addressable through an internet connection.

45. The method of claim 26, wherein said redundant database is a Public Domain Database.

46. The method of claim 45, wherein said Public Domain Database is GenBank.

50. The method of claim 26, wherein said comparing step further utilizes a Database Search Algorithm.

51. The method of claim 50, wherein said Database Search Algorithm is BLAST.

54. The method of claim 26, wherein said comparing step further utilizes a Scoring Matrix Program.

### **§ 101 Rejections**

Claims 26-30, 42-46, 50, 51, and 54 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. In response thereto, Applicants respectfully traverse the Examiner's rejection of the currently pending claims.

Claim 27 has been cancelled. The bases of rejection under this section for claim 27 are now obviated and Applicant requests removal of such basis for rejection from the case. Claims 26, 28-30, 42-46, 50, 51, and 54 have been directly amended (or by dependency, indirectly amended) to add a limitation requiring "displaying the sequences" or similar language as suggested by the Examiner. Thus, Applicant respectfully requests removal of these bases for rejection of the claims.

### **§ 102 Rejections**

Claims 26-30, 42-46, 50, 51, and 54 are rejected by the Examiner under 35 U.S.C. 102(b) as being anticipated by NCBI News (1996).

The cited reference fails to teach at least one of the key inventive points of the present invention. The art cited deals with taking an "unknown" sequence and querying it against a known sequence database to see where it fits in the broader sequence picture (a typical search against a database of "known" things and then categorize and report the results). In doing so, the cited art teaches away from the present invention as noted below.

Conversely, to the cited art the present invention teaches the computer how to deal with hoards of random snippets of DNA sequence information, assemble them into contigs, and during the process "learn" how to identify and "mask" novel repetitive elements (which otherwise greatly confuse the assembly), and then reassemble the data via an iterative "learning" process that identifies new repeats and "remembers" to delete them from the subsequent assembly (by adding them to the "known" repeat/masking database).

In fact, the type of searching and processing described in the cited art is clearly intended to be performed BEFORE the presently claimed invention/program is applied (i.e., each of the sequences is scanned against a "known" repeat database and all known sequences are masked prior to the sequence being used in the assembly). In addition, as directly opposed to the teaching of the cited art, the presently described invention is designed to work within a single species as opposed to the cross-species aspects of the cited reference (the presently invention does not look for new repeats by comparison to known repeats from other organisms as is taught by the cited reference).

Therefore, as the cited art clearly teaches away from the present invention, and as the cited art fails to teach at least one of the key inventive points of the present invention, Applicant respectfully requests removal of this basis of rejection.

The foregoing Response to the Official Office Action and bases for rejection of the claims is believed by the Applicant to address and overcome each point raised by the Examiner. Applicant respectfully rejection of its claims and that the case be forwarded to allowance.

**Status of the Claims**

What is claimed is:

1. (Cancelled).
2. (Cancelled).
3. (Cancelled).
4. (Cancelled).
5. (Cancelled).
6. (Cancelled).

7. (Cancelled).

8. (Cancelled).

9. (Cancelled).

10. (Cancelled).

11. (Cancelled).

12. (Cancelled).

13. (Cancelled).

14. (Cancelled).

15. (Cancelled).

16. (Cancelled).

17. (Cancelled).

18. (Cancelled).

19. (Cancelled).
20. (Cancelled).
21. (Cancelled).
22. (Cancelled).
23. (Cancelled).
24. (Cancelled).
25. (Cancelled).
26. (Currently amended) A method for generating a database of sequences that are greater than or equal to about 100 nucleotides in length, wherein each sequence is entered into the database only one time, the method comprising the steps of :  
selecting a query sequence from a redundant database;  
masking said query sequence with known repeat sequences;  
comparing said masked query sequence with identified unique sequences;  
identifying a unique portion of the query sequence that does not have a similar sequence in any of the identified unique sequences;

adding the unique portion of the query sequence to a unique database; and  
displaying the unique database.

27. (Cancelled).
28. (Original) The method of claim 26, wherein said sequence is a deoxyribonucleotide sequence.
29. (Original) The method of claim 26, wherein said sequence is a ribonucleotide sequence.
30. (Original) The method of claim 26, wherein said sequences are derived from animal DNA or RNA.
31. (Withdrawn) The method of claim 30, wherein said animal is a human.
32. (Withdrawn) The method of claim 30, wherein said animal is a mouse.
33. (Withdrawn) The method of claim 26, wherein said sequences are derived from plant DNA or RNA.
34. (Withdrawn) The method of claim 33, wherein said plant is a single-cell plant.
35. (Withdrawn) The method of claim 26, wherein said sequences are derived from fungal DNA or RNA.

36. (Withdrawn) The method of claim 26, wherein said sequences are derived from DNA or RNA of a microorganism or virus.
37. (Withdrawn) The method of claim 26, wherein said sequences are derived from DNA or RNA of a single-cell eukaryote.
38. (Withdrawn) The method of claim 26, wherein said sequences are derived from synthetic man-made DNA or RNA.
39. (Withdrawn) The method of claim 26, wherein said sequences are postulated based upon amino acid sequences.
40. (Withdrawn) The method of claim 26, wherein said database is encoded in a biological medium.
41. (Withdrawn) The method of claim 26, wherein said database is encoded in a written medium.
42. (Original) The method of claim 26, wherein said database is encoded in an electronic medium.




43. (Original) The method of claim 42, wherein said electronic medium is a computer-readable medium.
44. (Original) The method of claim 43, wherein said computer-readable medium is addressable through an internet connection.
45. (Original) The method of claim 26, wherein said redundant database is a Public Domain Database.
46. (Original) The method of claim 45, wherein said Public Domain Database is GenBank.
47. (Withdrawn) The method of claim 45, wherein said Public Domain Database is dbEST.
48. (Withdrawn) The method of claim 45, wherein said Public Domain Database is TIGR.
49. (Withdrawn) The method of claim 45, wherein said Public Domain Database is SwissProt.
50. (Original) The method of claim 26, wherein said comparing step further utilizes a Database Search Algorithm.
51. (Original) The method of claim 50, wherein said Database Search Algorithm is BLAST.

52. (Withdrawn) The method of claim 50, wherein said Database Search Algorithm is FASTA.
53. (Withdrawn) The method of claim 50, wherein said Database Search Algorithm is Smith-Waterman.
54. (Original) The method of claim 26, wherein said comparing step further utilizes a Scoring Matrix Program.
55. (Withdrawn) The method of claim 54, wherein said Scoring Matrix Program is PAM.
56. (Withdrawn) The method of claim 54, wherein said Scoring Matrix Program is BLOSUM.
57. (Cancelled)
58. (Cancelled)
59. (Cancelled)
60. (Cancelled)

The Commissioner is authorized to charge to McDaniel & Associates P.C. Deposit Account No. 50/1085, any fee for extension of time deemed necessary to make timely the filing of this response.

Respectfully submitted,

Date: 10.26.04

  
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